

PATENT COOPERATION TREATY

PCT

INTERNATIONAL SEARCH REPORT

(PCT Article 18 and Rules 43 and 44)

Applicant's or agent's file reference B1075.70043	FOR FURTHER ACTION <small>see Form PCT/ISA/220 as well as, where applicable, item 5 below.</small>	
International application No. PCT/US2004/009605	International filing date (day/month/year) 29/03/2004	(Earliest) Priority Date (day/month/year) 28/03/2003
Applicant C.R. BARD, INC.		

This International Search Report has been prepared by this International Searching Authority and is transmitted to the applicant according to Article 18. A copy is being transmitted to the International Bureau.

This International Search Report consists of a total of 9 sheets.

☒ It is also accompanied by a copy of each prior art document cited in this report.

1. Basis of the report

a. With regard to the **language**, the international search was carried out on the basis of the international application in the language in which it was filed, unless otherwise indicated under this item.

☐ The international search was carried out on the basis of a translation of the international application furnished to this Authority (Rule 23.1(b)).

b. ☐ With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, see Box No. I.

2. ☒ **Certain claims were found unsearchable** (See Box II).

3. ☒ **Unity of invention is lacking** (see Box III).

4. With regard to the **title**,

☐ the text is approved as submitted by the applicant.

☒ the text has been established by this Authority to read as follows:

BRAIDED MESH CATHETER

5. With regard to the **abstract**,

☐ the text is approved as submitted by the applicant.

☒ the text has been established, according to Rule 38.2(b), by this Authority as it appears in Box No. IV. The applicant may, within one month from the date of mailing of this international search report, submit comments to this Authority.

6. With regards to the **drawings**,

a. the figure of the **drawings** to be published with the abstract is Figure No. 41a

☒ as suggested by the applicant.

☐ as selected by this Authority, because the applicant failed to suggest a figure.

☐ as selected by this Authority, because this figure better characterizes the invention.

b. ☐ none of the figures is to be published with the abstract.

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Box No. IV Text of the abstract (Continuation of item 5 of the first sheet)

Embodiments of the application relate to electrophysiology catheters and methods of using the same. According to one embodiment, the catheter (306) includes a braided conductive member (28) at its distal end that can be radially expanded, for example using a mandrel (418) slidably disposed within a shaft (422) of the catheter. According to another embodiment, the catheter comprises a tip (300) portion constructed of an elastomeric material. According to a further embodiment, the catheter includes a braided conductive member wherein a thermocouple is formed using one filament of the braided conductive member and one thermocouple wire. Other embodiments relate to a handle for use with a catheter and methods of using the same.

(302)

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Box II Observations where certain claims were found unsearchable (Continuation of item 2 of first sheet)

This International Search Report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. ☒ Claims Nos.: 28-37, 49-53
because they relate to subject matter not required to be searched by this Authority, namely:
Rule 39.1(iv) PCT - Method for treatment of the human or animal body by surgery
2. ☐ Claims Nos.:
because they relate to parts of the International Application that do not comply with the prescribed requirements to such an extent that no meaningful International Search can be carried out, specifically:
3. ☐ Claims Nos.:
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

Box III Observations where unity of invention is lacking (Continuation of item 3 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows:

see additional sheet

1. ☐ As all required additional search fees were timely paid by the applicant, this International Search Report covers all searchable claims.
2. ☐ As all searchable claims could be searched without effort justifying an additional fee, this Authority did not invite payment of any additional fee.
3. ☐ As only some of the required additional search fees were timely paid by the applicant, this International Search Report covers only those claims for which fees were paid, specifically claims Nos.:
4. ☒ No required additional search fees were timely paid by the applicant. Consequently, this International Search Report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:
1-27

Remark on Protest

- ☐ The additional search fees were accompanied by the applicant's protest.
- ☐ No protest accompanied the payment of additional search fees.

FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

This International Searching Authority found multiple (groups of) inventions in this international application, as follows:

1. claims: 1-27

A catheter comprising a handle, a shaft portion coupled to a distal end of the handle, a tip portion, a braided conductive member coupled to the shaft portion and the tip portion, and a mandrel fixedly attached to the tip portion and slidably disposed within the shaft portion; wherein actuation of the mandrel expands the braided conductive member from an undeployed to a deployed position.

2. claims: 38-43

A catheter comprising a shaft portion coupled to a distal end of the handle, a tip portion, at least a portion of the tip portion being constructed of an elastomeric material, a braided conductive member coupled to the shaft portion and the tip portion.

3. claims: 44-48

A catheter comprising a handle, a shaft portion coupled to a distal end of the handle, a conductive member coupled to the shaft portion, the conductive member formed of a plurality of filaments, and a thermocouple wire coupled to a filament of the conductive member via a conductive junction, wherein the thermocouple wire is formed of a different material than the filament, and wherein the conductive junction is located between first and second ends of the filament.

4. claims: 54-58

A steering mechanism for a catheter, comprising a steering cable of first diameter, and an anchor disposed at a distal end of the steering cable, the anchor having a second diameter, wherein the first diameter is less than a diameter through which at least a portion of the steering cable passes and the second diameter is greater than the diameter of the lumen.

5. claims: 59-65

FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

A method of controlling the rotational friction of a thumbwheel of a catheter handle, comprising the rotational friction on the thumbwheel by compressing a spring that contacts the thumbwheel, and decreasing the frictional friction on the thumbwheel by decompressing the spring; and a handle for use with a catheter, the handle comprising a housing, a thumbwheel coupled to the housing, a spring coupled to the housing in contact with the thumbwheel, and means for increasing compression of the spring to increase rotational friction on the thumbwheel.

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A. CLASSIFICATION OF SUBJECT MATTER

IPC 7 A61M25/01 A61B18/14

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC 7 A61M A61B

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

EPO-Internal, WPI Data

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 5 891 136 A (MCGEE DAVID ET AL) 6 April 1999 (1999-04-06)	1,14,15
Y	column 5, lines 35-52; figures 1,6,7 column 10, lines 17-53 column 12, line 34 - column 13, line 13; figure 14 column 24, line 5 - column 25, line 24	2-10, 16-22,27
X	WO 00/67656 A (ATRIONIX INC) 16 November 2000 (2000-11-16) page 34, line 18 - page 35, line 11; figure 14 page 37, line 26 - page 38, line 6; figure 18 ----- -/--	1,4-6

☒ Further documents are listed in the continuation of box C.

☒ Patent family members are listed in annex.

* Special categories of cited documents :

"A" document defining the general state of the art which is not considered to be of particular relevance

"E" earlier document but published on or after the international filing date

"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)

"O" document referring to an oral disclosure, use, exhibition or other means

"P" document published prior to the international filing date but later than the priority date claimed

"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.

"&" document member of the same patent family

Date of the actual completion of the international search

27 August 2004

Date of mailing of the international search report

03.01.2005 ✓

Name and mailing address of the ISA

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C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	WO 94/00178 A (SCHNEIDER USA INC) 6 January 1994 (1994-01-06) page 3, line 33 - page 4, line 4	4-10, 20-22
A	page 11, line 3 - page 12, line 27; figures 5-8 page 16, line 5 - page 17, line 24; figure 9 page 18, line 30 - page 19, line 2	1
Y	WO 01/82814 A (BARD INC C R) 8 November 2001 (2001-11-08) the whole document	1,4-6, 13-15
Y	US 5 681 280 A (BOWE WADE A ET AL) 28 October 1997 (1997-10-28) column 6, lines 1-52; figure 1	1,4-6, 13-15
A	column 9, line 46 - column 15, line 18; figures 4,12-15	12,27
Y	WO 99/15225 A (UNITED STATES SURGICAL CORP ; FUTATO LISA D (US); ANGIORAD LLC (US); L) 1 April 1999 (1999-04-01)	16,17,27
A	page 6, line 15 - page 7, line 7	1,2
Y	US 5 868 706 A (COX DANIEL L) 9 February 1999 (1999-02-09)	2,3
A	column 2, lines 41-44 column 4, line 60 - column 5, line 16	1,16,17
A	EP 0 982 047 A (CORDIS WEBSTER INC) 1 March 2000 (2000-03-01) column 5, lines 6-40; figure 1 page 9, line 41 - page 10, line 21; figures 2-4	1,8-11
Y	US 5 813 997 A (QUIACHON DIGNAH B ET AL) 29 September 1998 (1998-09-29) column 11, lines 10-18; figure 13	18,19

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Information on patent family members

International Application No

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INTERNATIONAL SEARCH REPORT

Information on patent family members

I. International Application No

PCT/US2004/009605

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